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Application No.: 10/692,584
Response Dated: May 26, 2009
Office Action Dated: December 26, 2008

LISTING OF THE CLAIMS

Claims 1 to 10, cancelled.

11. (currently amended) A process for controlling the strain hardening properties of a polymer comprising:

blending a polymer and nanoparticles to produce a polymeric composition;

quenching the polymeric composition at a temperature below the glass transition temperature of the polymer to yield an amorphous polymeric composition;

forming a film from the amorphous polymeric composition; and

subjecting the film to strain hardening in a rubbery state by stretching the film at a temperature between the glass transition temperature and the cold crystallization temperature ~~sufficient to generate a rubbery state in the film~~,

wherein the nanoparticles are present in an effective amount of between 0.01% and 10% by volume based upon the volume of polymer used to form the polymeric composition in order to reduce the true strain at which the film formed from the polymeric composition undergoes strain hardening, and wherein the steps of quenching the polymeric composition and the step of forming the film are interchangeable.

12. (previously presented) The process of claim 11, wherein the polymer is selected from one or more homopolymers and copolymers of polyolefins, polyamides, polyimides, polyesters, aliphatic polymers, amorphous polymers, crystallizing polymers, and blends, alloys and combinations of two or more thereof.

13. (previously presented) The process of claim 11, wherein the nanoparticles are particles with at least one dimension in the nanoscale selected from spheres, particles of irregular geometry, sheets, foils, fibers, wires, tubes or combinations of two or more thereof.

14. (previously presented) The process of claim 11, wherein the nanoparticles are selected from carbon nanoparticles, graphite nanoparticles, carbon nanotubes, graphite nanotubes, spherical nanoparticles, Buckyballs, glassy nanoparticles, silica-based nanoparticles, nanoclays, substituted Montmorillonite, metal oxide nanoparticles, metal sulfide nanoparticles, metal nitride nanoparticles, metal complex nanoparticles, metal nanoparticles, metallic alloy nanoparticles, metallic alloy nanowires, metallic alloy nanospheres, metallic alloy nano-sized sheets, metallic alloy foils, colloidal nanoparticles, and mixtures of two or more thereof.

15. (previously presented) The process of claim 11, wherein the nanoparticles are substituted Montmorillonite.

16. (previously presented) The process of claim 11, wherein the nanoparticles are present in an amount of between 0.1% and 10% by volume based upon the volume of polymer used to form the polymeric composition.

17. (previously presented) The process of claim 11, wherein the nanoparticles are present in an amount of between 1% and 10% by volume based upon the volume of polymer used to form the polymeric composition.

18. (previously presented) The process of claim 11, wherein the nanoparticles are present in an amount of less than 5% by volume based upon the volume of polymer used to form the polymeric composition.

19. (previously presented) The process of claim 11, wherein the polymer composition is partially or completely molten when subjected to strain hardening.

20. (previously presented) A strain hardened polymeric product produced from the polymeric composition of claim 11.